

AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes changes to FIG. 2. This sheet, which includes only FIG. 2, replaces the original sheet containing FIG. 2. In FIG. 2, the diamond shaped box 261 has been replaced with a rectangular shaped box stating "Determine whether the N-gram is present in the language database." Also, the text in box 214 has been changed to read "For languages in which the N-gram appears, divide frequency by number of N-grams in language database." In addition, reference numerals 222 and 224 have been added to two previously unlabeled boxes.

Attachments: Replacement Sheet
 Annotated Sheet Showing Changes

REMARKS

Claims 1 and 3-20 are pending. Claim 2 has been canceled without prejudice or disclaimer. New claims 17-20 have been added to recite subject matter removed from their respective independent claims. Claims 1, 3-6 and 9-11 have been amended in order to improve the readability of the claims and/or to correct minor informalities. Applicants submit that no new matter has been added and that the amendments are not intended to narrow the scope of the claims. Applicants also submit that the aforementioned amendments and the following remarks place the instant application in condition for allowance. Accordingly, reconsideration and allowance of the application is respectfully requested.

DRAWING OBJECTION

The Examiner has objected to Figure 2 of the drawings, stating that there should be two arrows pointing from item 216, one for the affirmative and one for the negative (Office Action at page 2). It is apparent from paragraphs [0036] and [0037] of the published application that in the example of Figure 2, steps 214 and 220 are both carried out in connection with step 216 for those languages in which an n-gram appears. Thus, Figure 2 is proposed to be amended to enhance readability by replacing the “diamond” shape of step 216 with a rectangle shape stating, “Determine whether the n-gram is present in the language database” and by inserting the language “For languages in which N-gram appears,” at step 214.

In addition, Figure 2 is proposed to be amended to add reference numerals 222 and 224 to blocks in the figure that were previously unlabeled. It is submitted that these changes do not constitute new matter. Withdrawal of the objection is requested.

AMENDMENTS TO THE SPECIFICATION

The specification at page 10 has been amended to correct a typographical error, and the specification has been further amended at page 11 to add references to reference numerals 218, 222 and 224 of Figure 2. It is submitted that these changes do not constitute new matter.

CLAIM OBJECTIONS

Claim 2 has been objected to for being of improper dependent form, and claim 9 has been objected to for a minor informality. In response to these objections, applicants have canceled claim 2 insofar as its subject matter is already recited in claim 1 and have amended claim 9 per the Examiner's suggestions. Accordingly, applicants submit that these claim objections have been overcome.

CLAIM REJECTIONS – 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 1-6 and 9-11 have been rejected under 35 U.S.C. § 112, second paragraph. While it is believed that one of ordinary skill in the art would readily understand what was claimed, applicants have amended claims 1, 3-6 and 9-11 in order to expedite prosecution and enhance readability. These changes are not intended to narrow the scope of the claims. In view of the amendment, applicants respectfully request withdrawal of these claim rejections.

CLAIM REJECTION – 35 U.S.C. § 103

Claims 1-16 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Schulze (USP 6,167,369) in view of Messerly (USP 6,076,051). Applicants respectfully submit that Schulze and Messerly do not disclose or suggest each and every claim limitation, and that the Examiner has not articulated a proper reason to combine these references, as discussed below. Thus, withdrawal of the rejection and allowance of the pending claims are respectfully requested.

Regarding claim 1, the Examiner alleges that steps (a)-(c) and (f)-(g) are disclosed by Schulze, and alleges that steps (d)-(e) are disclosed by Messerly, and that it would have been obvious to combine these disclosures (See Office Action at pages 4-6). Applicants disagree.

First, even if hypothetically combined, Schulze and Messerly do not yield the combination of features claimed. As an initial matter, the *only* passage of Schulze referenced in the Examiner's rejection of claim 1 is col. 1, lines 18-34 (See Office Action at pages 5-6). This portion of text in Schulze, however, is directed only towards "[t]he trigram technique described by Grefenstette" (col. 1, line 18), which is included in the background discussion of Schulze. Nevertheless, the section of Schulze relied upon by the Examiner does not disclose step (f) of claim 1 which recites, "multiplying, for each of the plural n-grams, a number of times that n-

gram appears in the text passage by the altered weight of that n-gram from step (e) to produce a product for each n-gram, per language, and summing those products to produce a language passage weight for each language for the text passage”. The Examiner gives inadequate treatment to this limitation by merely alleging that it is met by “dividing the sentence into trigrams and calculating the probability of the sequence of trigrams for each language” in Schulze (or, more accurately, Grefenstette) (Office Action at page 6, citing col. 1, lines 18-34 of Schulze). Contrary to the Examiner’s suggestion, nowhere does Schulze disclose, “multiplying, for each of the plural n-grams, a number of times that n-gram appears in the text passage by the altered weight of that n-gram from step (e) to produce a product for each n-gram, per language, and summing those products to produce a language passage weight for each language for the text passage” (claim 1), and the Examiner’s broadly recited “probability” does not make up for the deficiency. Specifically, claim 1 requires steps of multiplying the “number of times” an n-gram appears in a text passage with an “altered weight”. This multiplication step is performed for each n-gram, yielding a “product” for each n-gram. Also, “summing” is performed incorporating these “products”. Further, these steps are performed for each language. Simply reciting “dividing the sentence into trigrams and calculating the probability of the sequence of trigrams for each language”, as in Schulze, fails to disclose or suggest the limitations articulated in step (f) discussed above. Thus, for the aforementioned reasons, Schulze fails to disclose each and every limitation of step (f) in claim 1.

The Examiner acknowledges that “Schulze does not explicitly disclose determining the number of databases containing each n-gram and dividing the n-grams initial weight by said number” (Office Action at page 5). The Examiner alleges, however, that Messerly discloses steps (d) and (e) recited in claim 1. Applicants disagree and submit that Messerly does not disclose steps (d) and (e) and fails to cure the deficiencies of Schulze.

Messerly does not disclose “determining the number of said databases within which each of said plural n-grams appear” as recited in step (d) of claim 1. The Examiner alleges that the “inverse document frequency” in Equation 1 (col. 12, lines 54-57) discloses this claim limitation. Applicants respectfully disagree. While applicants find phrases such as “inverse document frequency”, “total number of target documents”, and “number of target documents containing token combination” in Equation 1 of Messerly, applicants are unable to see how any of these phrases relate to the claimed subject matter of “determining the number of said databases within

which each of said plural n-grams appear” for which “each of said databases comprises a list of n-grams associated with a specific language” (claim 1). In fact, the features relied upon in Messerly are not databases at all, but rather, target documents. In Messerly, a “target document is comprised of a number of strings, such as sentences, each occurring at a particular location in the target document” (col. 1, lines 32-35). Thus, a “total number of target documents” in Messerly clearly is not the “number of said databases within which each of said plural n-grams appear”. Thus, Messerly fails to disclose or suggest “databases”, let alone the claimed “said databases” which are described as “a plurality of databases, wherein each of said databases comprises a list of n-grams associated with a specific language” (claim 1). Thus, the hypothetical combination of Schulze and Messerly does not yield the subject matter recited in step (d) of claim 1.

Messerly also fails to disclose “altering said initial weight for each of said plural n-grams by multiplying said initial weight with the inverse of said number of databases within which each of said plural n-grams appear” as recited in step (e) of claim 1. First, as discussed above, Messerly is completely absent of any disclosure or suggestion of “databases” or “said number of databases”. Second, the “inverse document frequency” recited in column 12, lines 36-39 of Messerly does not involve altering an “initial weight” for each plural n-gram by multiplying the initial weight with the “inverse of said number of databases within which each of said plural n-grams appear”. At best, the passage cited by the Examiner references an “Inverse Document Frequency” defined in Equation 1 as the log of (“total number of target documents” divided by “number of target documents containing token combinations”). Furthermore, the cited text states, “The facility preferably uses a combination of inverse document frequency and term frequency waiting to rank the matching target documents” (col. 12, lines 36-39). Other than reciting “inverse” in an equation involving target documents having token combinations, this passage relied upon by the Examiner appears to be arbitrary and wholly unrelated to the claimed limitation. In this passage, there is no disclosure or suggestion of a database, let alone multiplication of an initial weight by an “inverse of said number of databases within which each of said plural n-grams appear”. Thus, the hypothetical combination of Schulze and Messerly does not yield the subject matter recited in step (e) of claim 1.

Accordingly, for at least these reasons, the hypothetical combination of Schulze and Messerly does not render claim 1 obvious.

Additionally, the Examiner has not articulated a proper reason to combine these two references, and Schulze teaches away from doing so. First, Schulze is directed to “automatically identifying the language of a text” (col. 1, lines 5-7). In contrast, Messerly pertains to a different field of invention directed towards “performing information retrieval” (col. 2, lines 34-43). Further, the “advantage” of Messerly alleged by the Examiner as a reason for combining Messerly with Schulze is equally inapplicable. Specifically, the Examiner alleges that one of ordinary skill in the art at the time of the invention would have applied the “inverse document frequency” equation of Messerly to Schulze in order to give “greater weight to a token combination appearing in fewer of the target documents” (Office Action at page 6, quoting Messerly at col. 12, lines 42-43). However, this disclosure of Messerly is directed towards an “ability to distinguish between documents” in an information retrieval system (col. 12, lines 41-42). Being able to “distinguish between documents” in an information retrieval system by “giving greater weight to a token combination appearing in fewer of the target documents” as in Messerly has nothing to do with automatically identifying the language of a text as in Schulze. The Examiner has provided no explanation for how an ability to distinguish between documents in an information retrieval system could assist or even be applied to Schulze’s system for identifying the language of a text. Instead, the Examiner appears to be using improper hindsight reasoning in an attempt to combine two unrelated references without any proper reason for such a combination from the references themselves. For at least these reasons, at the time of the invention it would not have been obvious to one of ordinary skill in the art to combine Messerly with Schulze.

Further, the disclosure of Schulze *teaches away* from applying other references to the technique in Schulze relied upon by the Examiner. In particular, the *only* passage of Schulze referenced in the Examiner’s contention that Schulze allegedly discloses steps (a)-(c) and (f)-(g) of claim 1 is col. 1, lines 18-34 (See Office Action at pages 5-6), which is directed towards a prior art technique. Schulze *teaches away* from this technique, stating its results are “unsatisfactory” (col. 2, lines 21-30). Specifically, Schulze discloses, “As noted by Grefenstette, both short word and N-gram techniques work well on a large sample [However,] even N-gram techniques become unsatisfactory for the very small samples that typically occur in some applications” (col. 2, lines 21-30; underlining added). In contrast, “The [Schulze] invention is based on the discovery of a new technique for automatic language identification that alleviates

these problems” (col. 2, lines 24-22). Thus, at the time of the invention one of ordinary skill in the art considering both Schulze and Messerly would *not* have a reason to combine, and would actually be *discouraged* from combining, Messerly with the subject matter relied upon in Schulze. Accordingly, applying Messerly to the subject matter relied upon in Schulze *contradicts* the statements by Schulze as to that prior art technique.

Regarding claims 3-8, applicants submit that these claims are allowable at least based upon their dependency from claim 1. Further, applicants submit that the rejection of the claims is improper insofar as it implicitly amounts to selective picking and choosing of features from the background discussion of prior art and the detailed description, and combining those features in a way that does not correspond to any disclosed embodiment of Schulze. Specifically, the Examiner alleges that Schulze discloses elements of claim 1 as discussed above based only upon a prior art technique at col. 1, lines 18-34, and that Schulze further discloses elements of claims 3-8 based only upon Schulze’s alleged invention at col. 16, lines 16-21 and col. 6, lines 62-65. This does not correspond to any disclosed embodiment of Schulze. To the extent the Examiner may believe such a combination is obvious, applicants disagree, since Schulze teaches away from using the prior art technique disclosed in Schulze’s background, as discussed above. Claims 3-8 are allowable for at least this additional reason.

Regarding claims 9-11, the Examiner alleges that Schulze in view of Messerly disclose the claimed invention for the same reasons as previously discussed with respect to claim 1 (Office Action at page 8). Accordingly, applicants incorporate by reference the above arguments with respect to claim 1 in response to the art rejection of claims 9-11. That is, Schulze in view of Messerly fail to disclose or suggest each and every limitation of claims 9-11 for reasons similar to those discussed above regarding claim 1.

Regarding claims 12-16, applicants submit that these claims are allowable at least based upon their dependency from claim 11, and for reasons similar to those set forth above with respect to claims 3-8.

Regarding claims 17-20, applicants submit that these new claims are allowable at least based upon their dependency from claim 1 and 9-11, respectively.


For the above reasons, applicants respectfully requests for the withdrawal of the art rejections and for the allowance of claims 1 and 3-20.

CONCLUSION

In light of the above amendments and remarks, applicants respectfully request that the Examiner reconsider this application with a view towards allowance. The Examiner is invited to call the undersigned attorney at (202) 879-3939, if a telephone call could help resolve any remaining items.

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Respectfully submitted,



Douglas H. Pearson

47,851
(Reg. No.)

JONES DAY

51 Louisiana Avenue, N.W.
Washington, DC 20001-2113
(202)879-3939

Annotated Sheet Showing Changes

FIG. 2

